



Boundless Security Systems, Inc.
sharper images with better access and easier installation



Fault-Tolerant, Redundant, Fully Networked, Enterprise-Class, Digital Video Security Systems

Designed for the utmost image quality, reliability, survivability and accessibility because things go wrong at the worst possible times



Reliable protection in the air, on land and at sea



A deadly situation to avoid

Dec. 5, 2005

Boundless Security Systems, Inc.
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Executive Summary

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DVR-based Systems

- Often blurry recorded images
- Proprietary hardware has support problems
- Subject to single-point failures
- Limited storage capacity
- One video stream per camera gives limited investigation and monitoring capabilities
- Requires analog system for live viewing
- Network & Cyber security problems
- Requires external control of access control



cropped, highly magnified, blurry recorded image from other systems



cropped, magnified sharper recorded image from Boundless Security System

Boundless Security System™

- Sharper recorded images
- Fault-tolerant + redundant = reliable
- Non-proprietary hardware throughout
- Low, video-on-demand, network bandwidth of DVR's with installation & scalability benefits of IP-based systems
- Seamless storage to 1 PB per network
- Multiple different digital video streams per camera simultaneously satisfy competing needs for image quality, storage, communications and display for investigations, monitoring and situation assessment / first-responders
- Combined *virtual matrix switch*, and *virtual video processor* at each display device, enable viewing up to 96 live and recorded video streams at once on each PC/TV monitor, independent of all others
- Layered network- and Cyber-security
- Autonomous access control

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Boundless' Corporate Profile

- **Principals' extensive systems-level expertise**
 - Video security industry
 - Video digital signal processing
 - Mission-critical systems
 - Construction & telemetry of USAF communications spacecraft
 - Large-scale, central office telephone switching systems
 - Analyze and understand basic underlying principles in depth
- **Steve Morton, CEO, known for a child-safety device that uses biometrics and digital imaging**
- **Believes that device failures are a fact of life, and core system architecture should fix them**
- **Founded in Fairfield County, CT, 75 miles from NYC, in response to 9-11-01 terrorist attacks**

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Boundless' Broad Expertise Complements Its Systems Integrators'



- | | |
|------------------------------------|----------------------------------|
| • Biometrics | • Internet Protocols (IP) |
| • Communications | • LAN, WAN |
| • Cyber Security | • Mass-Storage |
| • Design for Test | • Optics |
| • Digital Signal Processors | • Parallel Processing |
| • Hardware Design | • Reliability |
| • Human Factors | • Software Design |
| • Image Processing | • Software Tools |
| • Image Processor Chips | • System Architecture |
| • Image Sensors | • Video Compression |

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Boundless Security System™ 5

Has Many Uses

 Building interiors	 Power infrastructure (WAN wireless)	 Perimeters (WAN wireless)
 Delivery vans and repair vehicles (WAN wireless)	 Maritime (WAN wireless)	 Aviation

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Boundless Security System™ 6

Provides Better Recorded Images

- **Multiple different digital video streams per camera simultaneously, optimize use of live and recorded video for...**
 - **investigations[†]** - full camera resolution, maximum clarity, 5 fps/camera (high data rate)
 - **monitoring[†]** - low and medium resolutions, medium clarity, 10 to 30 fps/camera (medium data rate)
 - **situation assessment[†]** - low resolution, 5 to 10 fps/camera (low data rate)
- **Records all video all the time using efficient MPEG-4 without need to gate recording using motion detection, so no events are missed**

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Boundless Security System™ ⁷ **Provides Superior Reliability**

- Fully distributed, edge-controlled, IP-based architecture and Boundless' **Storage Operating System™** avoid single-point system failures
- Flawless recording despite transient network and server overloads, and network-throttling
- Fault-tolerance and redundancy compensate in seconds for hard network and server failures
- **Physical Diversity Recording™** stores different streams from each camera in different locations for safety, to engineer network traffic, and to implement multiple network security zones

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Boundless Security System™ ⁸ **Provides Virtually Unlimited Storage**

- **Boundless' Storage Operating System™:**
 - avoids storage limits of any single disk partition, disk or storage server
 - provides virtually unlimited (to 1 petabyte) online disk storage via its expansion-on-the-fly architecture
 - provides **Physical Diversity Recording™**, storing different video streams from each camera in different physical locations on a network, *if desired*, for safety and to engineer network traffic and security
 - provides seamless, software-based, **storage virtualization** so that storage details are invisible to users
 - provides different storage retention policies for each stream for each camera for economy of storage and to facilitate different levels of access to the video

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Boundless Security System™ ⁹

Improves Local and Remote Access

		
Live and recorded audio / video at police stations	Live video on PDA or Cell Phone for first-responders	Live audio / video in police cars (WAN wireless)
		
Live video throughout facilities via LAN	Live and recorded audio / video / event data at headquarters and monitoring companies	

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Boundless Security System™ ¹⁰

Provides Superior Video Access

- **Virtual digital video matrix switch enables all users to view all live and recorded video streams**
- **Virtual video processor for each display device reduces display cpu needs for viewing...**
 - **investigations at 5 fps/camera**
 - **monitoring at 10 to 30 fps/camera with low latency**
 - **situation assessment at 5 to 10 fps/camera over slow and congested, wired and wireless LAN & WAN links**
- **TiVo-like pause/step/play control of live video by every user to review incidents in progress**
- **Display dozens of video streams simultaneously on each HDTV monitor at full 1080i resolution**

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Boundless Security System™ ¹¹

Satisfies Diverse Video Imaging Needs

- **Simultaneously and efficiently meets diverse live and recorded video imaging needs for:**
 - **investigations**, video with sharpest images is typically stored for long periods of time (3 months or more)
 - **monitoring and public awareness** using live video monitoring streams; bank HQ, branch and monitoring personnel can see trouble spots; video is typically stored for short periods of time (days) for economy
 - **situation assessment by law enforcement** using PDA or cell phone for video streams via Cyber-secure Internet connection

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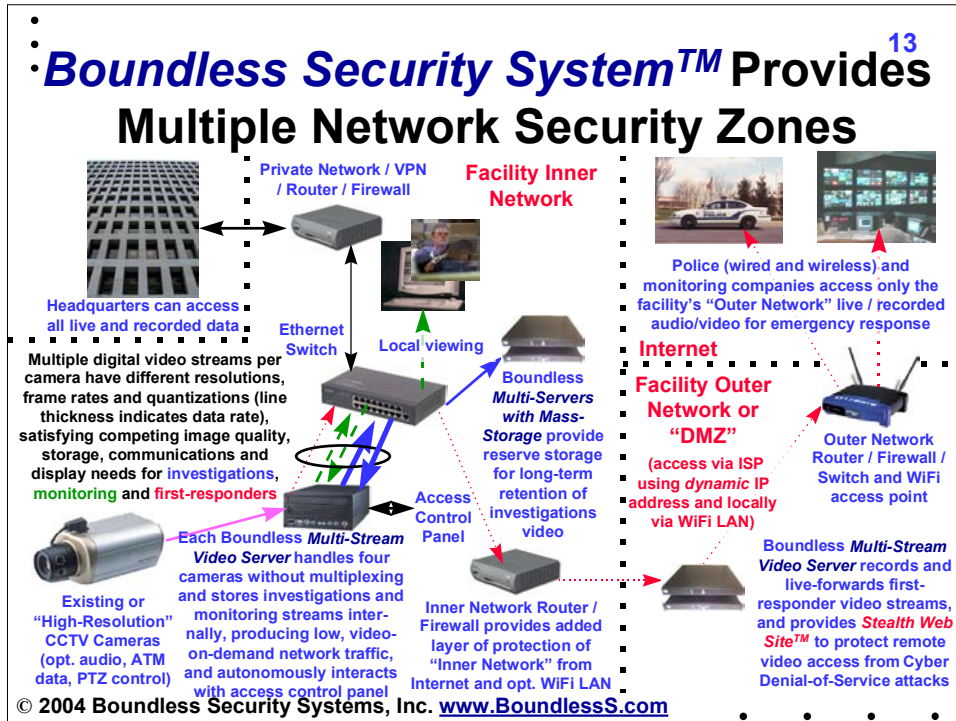
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Boundless Security System™ ¹²

is Network-Friendly

- **Provides low, video-on-demand network-bandwidth of DVR's with superior connectivity, access, expansion, reliability and ease of installation of IP-based systems**
- **Boundless' Multi-Stream Video Server provides multiple IP-video streams per camera, all of which can be stored internally, creating **NO** network traffic except when live/recorded video is accessed via the network**
- **Multiple streams/camera enable streams with lowest data rates to be used most of the time**

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- ## Boundless Security System™ Has Layered, Network and Cyber Security
- Boundless' *Physical Diversity Recording™* stores different video streams from a given camera in different servers in different locations on a network, enabling multiple network security zones to be implemented to increase security
 - Boundless' *Stealth Web Site™* technology protects the Boundless Security System™ from Cyber Denial-of-Service attacks and enables an inexpensive, safe connection to the Internet via an Internet Service Provider using a dynamic (not a static) IP address
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Boundless Security System™ ¹⁵ is Easy to Build, Install and Maintain

- Non-proprietary hardware throughout avoids sole-source supply and maintenance problems, and provides many housings for versatility
- Connect to existing CCTV cameras and video cables to easily retrofit existing systems
- Takes advantage of congested Wi-Fi network segments and throttled network segments to simplify installation in large facilities & outdoors
- Drastically reduces cabling and installation cost when Boundless' *Multi-Stream Video Server* is located near cameras and access control panels

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Conclusion

The *Boundless Security System™*...

- is designed as a **system**, not a component, and based on the premise that things go wrong at the worst possible time
- provides fault-tolerant, survivable, enterprise-class operation
- records better images and provides long-term storage of investigations video without storage limits of other systems
- uses non-proprietary hardware throughout, avoiding sole-source supply, expansion and maintenance problems
- combines low, video-on-demand network bandwidth of digital video recorders with superior connectivity, access, expansion, reliability and ease of installation of IP-based systems
- satisfies competing imaging needs for investigations, monitoring and situation assessment / first-responders
- provides Cyber-secure remote access to audio/video/events
- easily retrofits existing CCTV cameras and display systems

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*Designed for the utmost image quality, reliability, survivability and
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Reliable protection in
the air, on land and
at sea

*Patent pending. All Rights Reserved. © 2004-2005 by BSSI.
Specifications are subject to change without notice.
Some system features may be optional.
Audio according to local statutes.*

The End

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